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Server/Workstation
Motherboard

ROME2D16HM3

User Manual

English



Version 1.10

Published Dec. 2024

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

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The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

“Perchlorate Material-special handling may apply, see www.dtsc.ca.gov/hazardouswaste/perchlorate”

ASRock Rack's Website: www.ASRockRack.com

Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, you're welcome to visit ASRock Rack's website at www.ASRockRack.com; or you may contact your dealer for further information.

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Chapter 1 Introduction

Thank you for purchasing ASRock Rack **ROME2D16HM3** motherboard, a reliable motherboard produced under ASRock Rack's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock Rack's commitment to quality and endurance.

In this manual, chapter 1 and 2 contains introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contains the configuration guide to BIOS setup and information of the Support CD.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock Rack website without further notice. You may find the latest memory and CPU support lists on ASRock Rack website as well. ASRock Rack's Website: www.ASRockRack.com

*If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.
<http://www.asrockrack.com/support/>*

1.1 Package Contents

- ASRock Rack ROME2D16HM3 Motherboard
(Half Form Factor: 20-in x 6.6-in, 16.8 cm x 50.8 cm)
- Quick Installation Guide
- 2 x Screws for M.2 Sockets
- 1 x OCP3.0 Plastic Guide Rails



If any items are missing or appear damaged, contact your authorized dealer.

1.2 Specifications

ROME2D16HM3	
MB Physical Status	
Form Factor	Half Width
Dimension	6.6" x 20" (16.8 cm x 50.8 cm)
Processor System	
CPU	Supports AMD EPYC™ 7003 and 7002 Series Processors
Socket	2 × AMD Socket SP3
Thermal Design Power	225W (240W cTDP)
System Memory	
Type	- Eight Channel DDR4 memory technology (1DPC) - Supports DDR4 RDIMM, LRDIMM, 3DS, NVDIMM
DIMM Size Per DIMM	- RDIMM: 64GB, 32GB, 16GB, 8GB - LRDIMM: 256GB, 128GB, 64GB, 32GB - 3DS: 32GB, 16GB, 8GB - NV DIMM: 32GB
DIMM Frequency	- RDIMM: 3200MHz - LRDIMM: 3200MHz - 3DS: 3200MHz - NVDIMM: 2666MHz
Voltage	1.2V
Expansion Slot	
PCIe 4.0 x24	2 (Gen4 x24 link)
Storage	
SATA Controller	26 x SATA3 (24 from 3 x Slimline SAS (SLIMLINE1, SLIMLINE3, SLIMLINE9) + 2 for M.2 slots)
M.2 Slot	2 (M.2_1, 2280/22110 (SATA 6Gb/s or PCIe4.0 x4)(CPU0), shared with SATA4/SATA5); M.2_2, 2260/2280 (SATA 6Gb/s or PCIe4.0 x4)(CPU0))
Slimline SAS	SLIMLINE1 (CPU1) (SATA 6Gb/s+PCIe4.0 x8) SLIMLINE2 (CPU1) (PCIe4.0 x8) SLIMLINE3 (CPU1) (SATA 6Gb/s+PCIe4.0 x8) SLIMLINE4 (CPU1) (PCIe4.0 x8) SLIMLINE5 (CPU1) (PCIe4.0 x8) SLIMLINE6 (CPU1) (PCIe4.0 x8) SLIMLINE7 (CPU1) (PCIe4.0 x8) SLIMLINE8 (CPU1) (PCIe4.0 x8) SLIMLINE9 (CPU0) (SATA 6Gb/s+PCIe4.0 x8)
Mezzanine	1 SFF (PCIe4.0 x16) (CPU0)

Ethernet	
Interface	N/A
LAN	1 x RJ45 Dedicated IPMI LAN port
Management	
BMC Controller	ASPEED AST2500
IPMI Dedicated GLAN	1 x Realtek RTL8211E for dedicated management GLAN
Features	- Watch Dog - NMI
Graphics	
Controller	ASPEED AST2500
VRAM	DDR4 512MB
Rear Panel I/O	
VGA Port	1 (Mini DisplayPort)* <i>*Not supported for the standard Mini DisplayPort connection.</i>
USB 3.2 Gen1 Port	2
LAN Port	1 (IPMI) LAN port (RJ45) LAN Ports with LED (ACT/LINK LED and SPEED LED)
UID	1
Internal Connector	
Auxiliary Panel Header	1 (includes chassis intrusion, location button & LED, front LAN LED)
Front Panel	1
TPM Header	1
IPMB Header	1
Fan Header	4 Fans x 6-pin
USB 3.2 Gen1 Header	1 (supports 2 USB 3.2 Gen1 ports)
Micro-Hi Power	2 x (8-pin)
HDD Power	1 x (4-pin)
BMC SMB	1
PSU SMB	1
COM Header	1
Speaker(4pin)	1
2U4N_FPB	1
CM_SB_L	1
CM_SB_R	1
HP_SMB	1
Clear CMOS	1 (short pad)
OH/FanFail LED	4 (only Fan Fail LED)
System BIOS	
BIOS Type	64Mb AMI UEFI Legal BIOS

BIOS Features	- Plug and Play (PnP) - ACPI 2.0 Compliance Wake Up Events - SMBIOS 2.8 Support - ASRock Rack Instant Flash
Hardware Monitor	
Temperature	- CPU Temperature Sensing - MB/Card side Temperature Sensing
Fan	- Fan Tachometer - CPU Quiet Fan (Allow Chassis Fan Speed Auto-Adjust by CPU Temperature) - Fan Multi-Speed Control
Voltage	Voltage Monitoring: +12V, +5V, +3.3V, VDDCR_CPU, VDDCR_SOC, VCCM_ABCD, VCCM_EFGH, +BAT, 3VSB, 5VSB, +12V_EDGE, +3V_EDGE
Support OS	
OS	Microsoft® Windows® - Server 2016 (64 bit) - Server 2019 (64 bit) Linux® - RedHat Enterprise Linux Server 8.2 (64 bit) / 7.9 (64 bit) - CentOS 8.2 (64 bit) / 7.9 (64 bit) - SUSE SLES 15.2 (64 bit) / 12.5 (64 bit) - Ubuntu 20.04.1 (64 bit) / 18.04.5 (64 bit) / 16.04.7 (64 bit) Hypervisor - VMWare® ESXi 7.0 u1c / vSphere 7.0 u1c - VMWare® ESXi 6.7.0 u3 / vSphere 6.7.0 u3 - VMWare® ESXi 6.5.0 u3 / vSphere 6.5.0 u3 - CITRIX Hypervisor 8.1.0 <i>*Please refer to our website for the latest OS support list.</i>
Environment	
Temperature	Operation temperature: 10°C ~ 35°C / Non operation temperature: -40°C ~ 70°C



This motherboard supports Wake from on Board LAN. To use this function, please make sure that the "Wake on Magic Packet from power off state" is enabled in Device Manager > Intel® Ethernet Connection > Power Management. And the "PCI Devices Power On" is enabled in UEFI SETUP UTILITY > Advanced > ACPI Configuration. After that, onboard LAN1&2 can wake up S5 under OS.

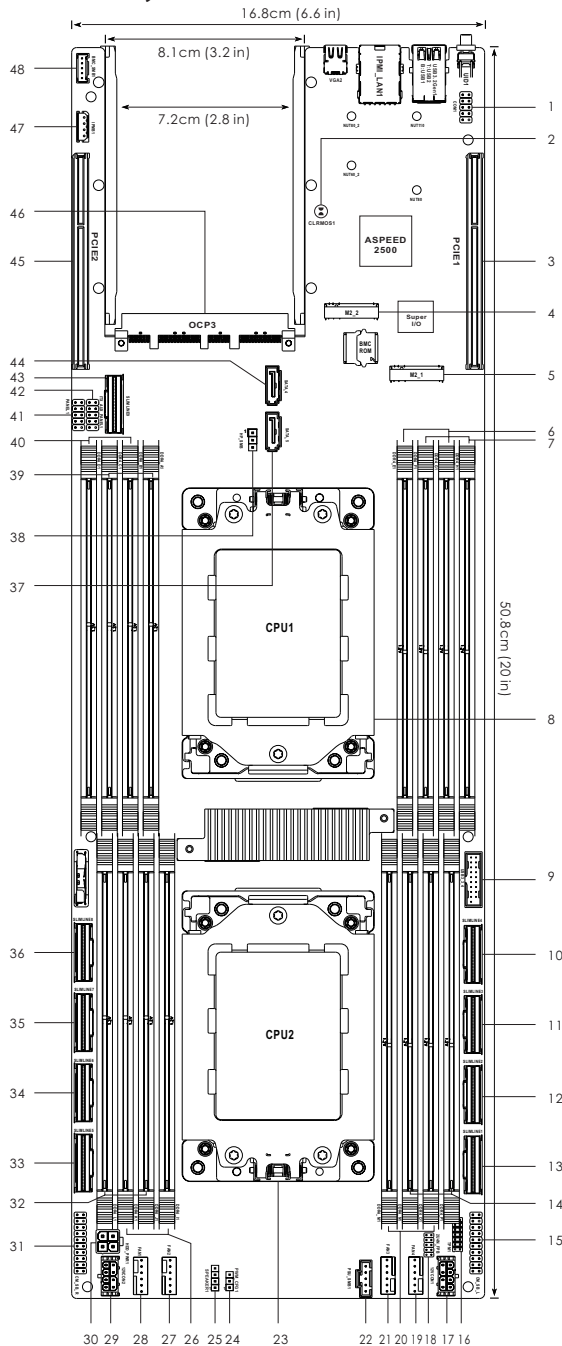


If you install Intel® LAN utility or Marvell SATA utility, this motherboard may fail Windows® Hardware Quality Lab (WHQL) certification tests. If you install the drivers only, it will pass the WHQL tests.

1.3 Unique Features

ASRock Rack Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows[®]. With this utility, you can press the <F6> key during the POST or the <F2> key to enter into the BIOS setup menu to access ASRock Rack Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.

1.4 Motherboard Layout

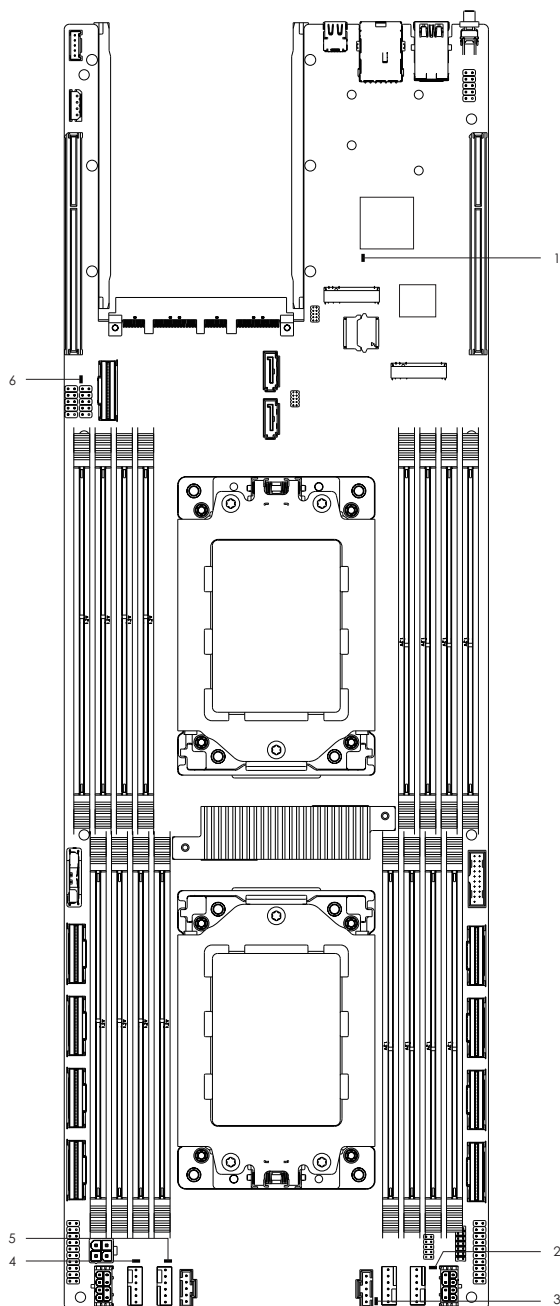


No.	Description
1	Serial Port Header (COM1)
2	Clear CMOS Pad (CLRMOS1)
3	PCI Express 4.0 x24 Slot (PCIE1)
4	M.2 Socket (M2_2) (Type 2260 / 2280)
5	M.2 Socket (M2_1) (Type 2280 / 22110)
6	2 x 288-pin DDR4 DIMM Slots (DDR4_E1, DDR4_G1)*
7	2 x 288-pin DDR4 DIMM Slots (DDR4_F1, DDR4_H1)*
8	AMD Socket SP3 (LGA 4094) (CPU1)
9	USB 3.2 Gen1 Header (USB3_3_4)
10	Slimline SAS Connector (SLIMLINE4)
11	Slimline SAS Connector (SLIMLINE3)
12	Slimline SAS Connector (SLIMLINE2)
13	Slimline SAS Connector (SLIMLINE1)
14	2 x 288-pin DDR4 DIMM Slots (DDR4_J1, DDR4_L1)*
15	CM Board Standby Power Header (CM_SB_L)
16	TPM Header (TPM1)
17	Micro-Hi Power Connector (12VCON1)
18	Front Panel Board Header (J2)
19	System Fan Connector (FAN4)
20	2 x 288-pin DDR4 DIMM Slots (DDR4_J1, DDR4_L1)*
21	System Fan Connector (FAN3)
22	PSU SMBus (PSU_SMB1)
23	AMD Socket SP3 (LGA 4094) (CPU2)
24	PWM Configuration Header (PWM_CFG1)
25	Speaker Header (SPEAKER1)
26	2 x 288-pin DDR4 DIMM Slots (DDR4_M1, DDR4_O1)*
27	System Fan Connector (FAN2)
28	System Fan Connector (FAN1)
29	Micro-Hi Power Connector (12VCON2)
30	HDD Power Connector (HDD_PWR1)
31	CM Board Standby Power Header (CM_SB_R)
32	2 x 288-pin DDR4 DIMM Slots (DDR4_N1, DDR4_P1)*
33	Slimline SAS Connector (SLIMLINE5)
34	Slimline SAS Connector (SLIMLINE6)

No.	Description
35	Slimline SAS Connector (SLIMLINE7)
36	Slimline SAS Connector (SLIMLINE8)
37	SATA3 Connector (SATA_5)
38	Hot Plug Detect Header (HP_SMB)
39	2 x 288-pin DDR4 DIMM Slots (DDR4_A1, DDR4_C1)*
40	2 x 288-pin DDR4 DIMM Slots (DDR4_B1, DDR4_D1)*
41	System Panel Header (PANEL1)
42	Auxiliary Panel Header (AUX_PANEL1)
43	Slimline SAS Connector (SLIMLINE9)
44	SATA3 Connector (SATA_4)
45	PCI Express 4.0 x24 Slot (PCIE2)
46	Mezzanine Card Slot (OCP3)
47	Intelligent Platform Management Bus Header (IPMB1)
48	BMC SMBus Header (BMC_SMB1)

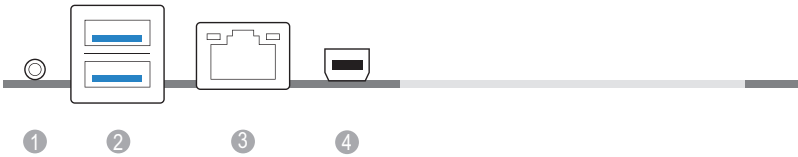
**For DIMM installation and configuration instructions, please see p.18 (Installation of Memory Modules (DIMM)) for more details.*

1.5 Onboard LED Indicators



No.	Item	Status	Description
1	BMC_LED1	Green	BMC heartbeat LED
2	FAN_LED4	Amber	FAN4 failed
3	FAN_LED3	Amber	FAN3 failed
4	FAN_LED1	Amber	FAN1 failed
5	FAN_LED2	Amber	FAN2 failed
6	SB_PWR1	Green	STB PWR ready

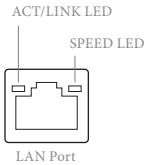
1.6 I/O Panel



No.	Description	No.	Description
1	UID Switch (UID)	3	LAN RJ-45 Port (IPMI_LAN1)*
2	USB 3.2 Gen1 Ports (USB3_1_2)	4	Mini DisplayPort (VGA1)

LAN Port LED Indications

*There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

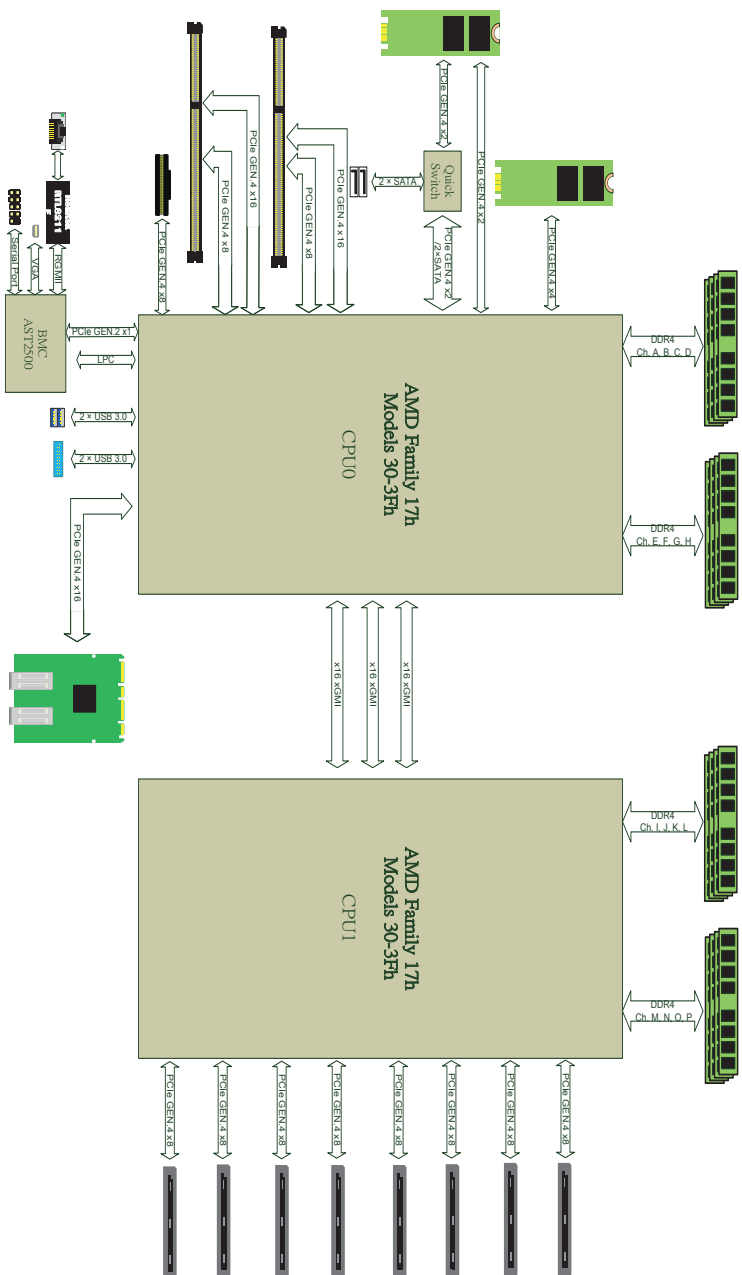


Dedicated IPMI LAN Port LED Indications

Activity / Link LED		Speed LED	
Status	Description	Status	Description
Off	No Link	Off	10M bps connection or no link
Blinking Yellow	Data Activity	Yellow	100M bps connection
On	Link	Green	1Gbps connection

ROME2D16HM3

1.7 Block Diagram



Chapter 2 Installation

This is a half form factor (20" x 6.6", 50.8 cm x 16.85 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.



Do not over-tighten the screws! Doing so may damage the motherboard.

2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any components.
2. To avoid damaging the motherboard's components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded anti-static pad or in the bag that comes with the component.
5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard.

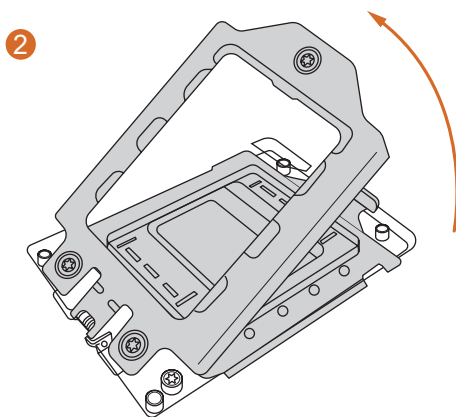
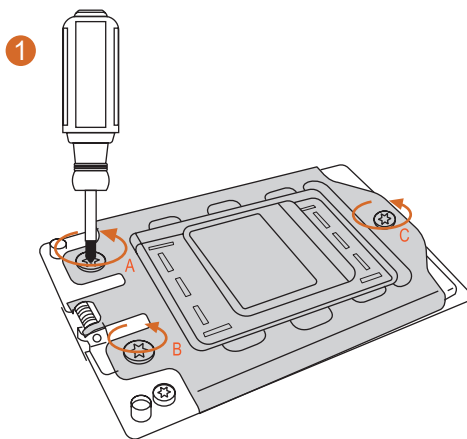


Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

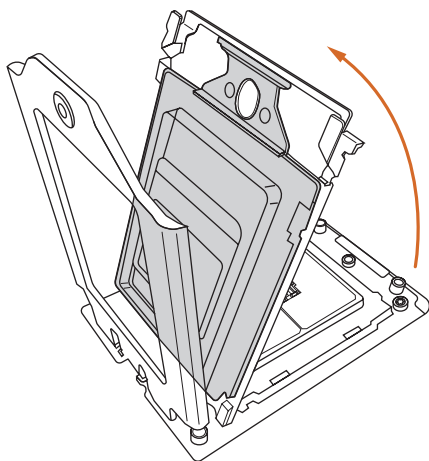
2.3 Installing the CPU



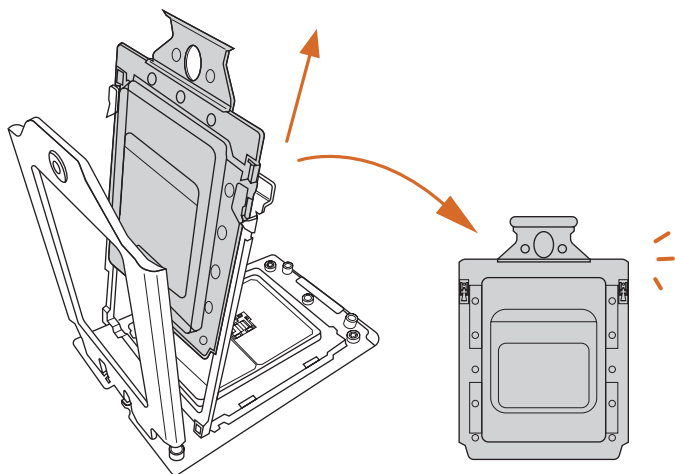
1. Before you insert the CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.
2. Unplug all power cables before installing the CPU.



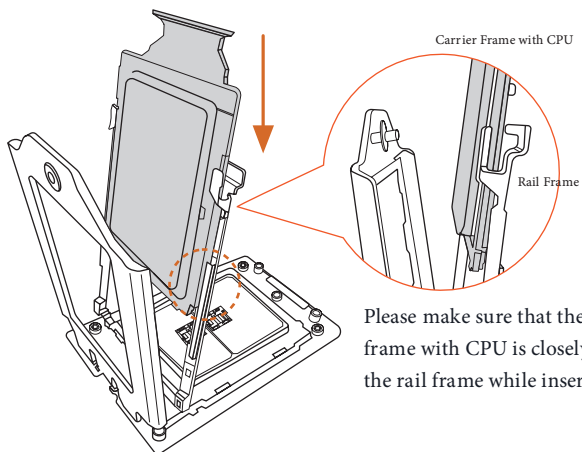
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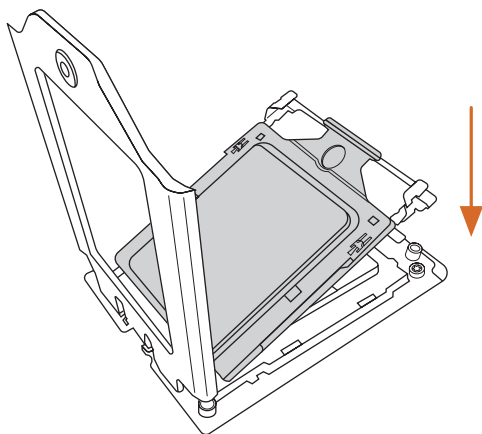


Please make sure that the carrier frame with CPU is closely attached to the rail frame while inserting it.

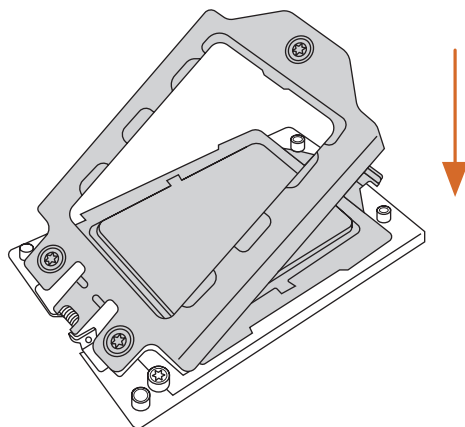


Install the carrier frame with CPU. Don't separate them.

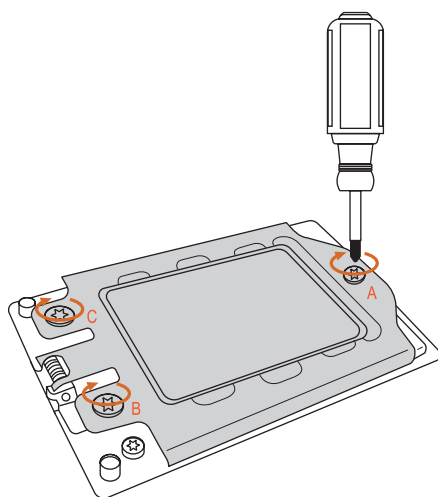
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7



8



2.4 Installation of Memory Modules (DIMM)

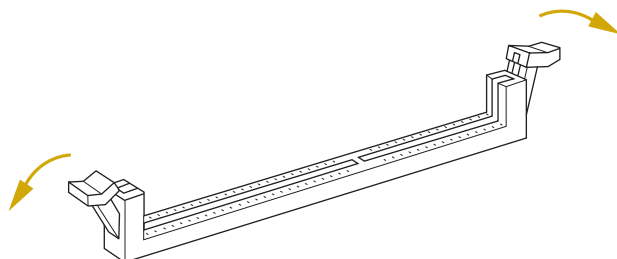
This motherboard provides eight 288-pin DDR4 (Double Data Rate 4) DIMM slots in two groups, and supports Eight Channel Memory Technology.

	CPU1							
	A1	B1	C1	D1	E1	F1	G1	H1
1 DIMM			#					
2 DIMMS			#	#				
4 DIMMS	#	#					#	#
8 DIMMS	#	#	#	#	#	#	#	#

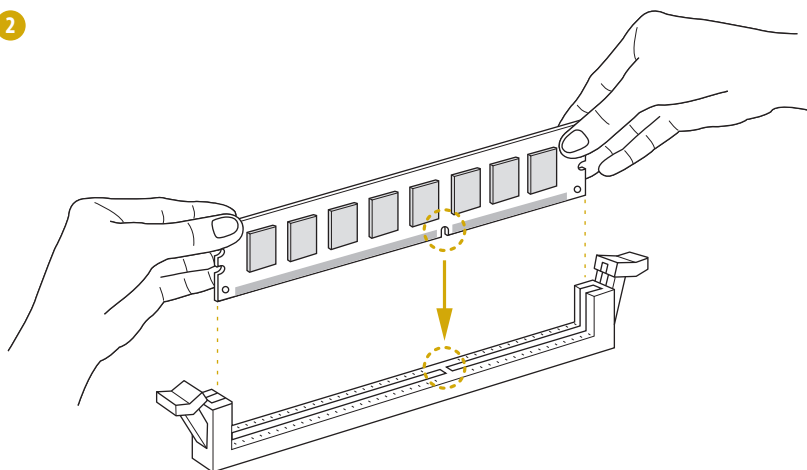


1. It is not allowed to install a DDR, DDR2 or DDR3 memory module into a DDR4 slot; otherwise, this motherboard and DIMM may be damaged.
2. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR4 DIMM pairs.
3. It is unable to activate Dual Channel Memory Technology with only one or three memory module installed.
4. Some DDR4 1GB double-sided DIMMs with 16 chips may not work on this motherboard. It is not recommended to install them on this motherboard.

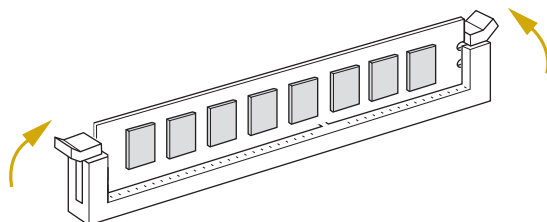
1



2



3



The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

2.5 Expansion Slots (PCI Express Slots)

There are 2 PCI Express slots on this motherboard.

PCIE slot:

PCIE1 and PCIE2 (PCIE 4.0 x16 slot, from CPU) are used for PCI Express x24 lane width cards.

Slot	Generation	Mechanical	Electrical	Source
PCIE1	4.0	x24	x24	CPU1
PCIE2	4.0	x24	x24	CPU1

Installing an expansion card

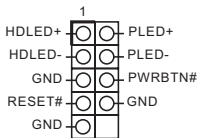
- Step 1. Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.
- Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).
- Step 3. Remove the bracket facing the slot that you intend to use on the chassis. Keep the screw for later use.
- Step 4. Install the PCIE card to the riser card.
- Step 5. Align the riser-card assembly connector with the slot on the system board. Press firmly until the riser-card assembly is completely seated on the slot.
- Step 6. Fasten the card to the chassis with the screw.
- Step 7. Replace the system cover.

2.6 Onboard Headers and Connectors



Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

System Panel Header
(9-pin PANEL1)
(see p.6, No. 41)



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments. Particularly note the positive and negative pins before connecting the cables.



PWRBTN (Power Switch):
Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

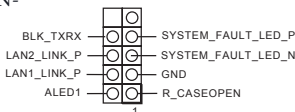
RESET (Reset Switch):
Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED):
Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S4 sleep state or powered off (S5).

HDLED (Hard Drive Activity LED):
Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

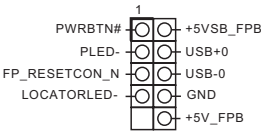
The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

Auxiliary Panel Header
(9-pin ITX_AUX_PAN-
EL1)
(see p.6, No. 12)



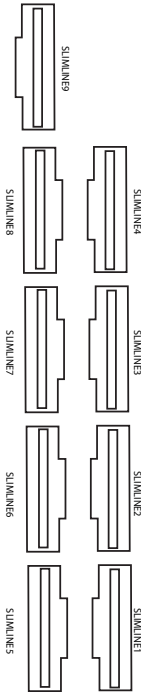
This header supports multiple functions on the front panel, including front panel SMB, internet status indicator.

Front Panel Board Header
(9-pin 2U4N_FPB)
(see p.6, No. 18)



Connect this header to the
Front Panel Board on the
system.

SLIMLINE SAS
Connectors
(SLIMLINE1)
(see p.6, No. 13)
(SLIMLINE2)
(see p.6, No. 12)
(SLIMLINE3)
(see p.6, No. 11)
(SLIMLINE4)
(see p.6, No. 10)
(SLIMLINE5)
(see p.6, No. 33)
(SLIMLINE6)
(see p.6, No. 34)
(SLIMLINE7)
(see p.6, No. 35)
(SLIMLINE8)
(see p.6, No. 36)
(SLIMLINE9)
(see p.6, No. 43)



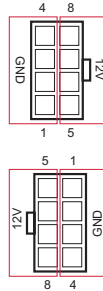
These connectors are used for
the NVME PCIE devices.

Serial ATA3 Connectors
(SATA_4)
(see p.6, No. 44)
(SATA_5)
(see p.6, No. 37)



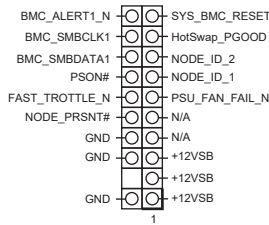
These SATA3 connectors
support SATA data cables for
internal storage devices with
up to 6.0 Gb/s data transfer
rate.

Micro-Hi Power
Connectors
(8-pin 12VCON1)
(see p.6, No. 17)
(8-pin 12VCON2)
(see p.6, No. 29)



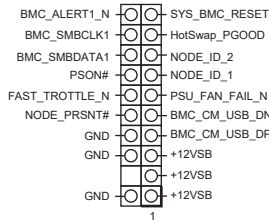
This motherboard provides two 8-pin Micro-Hi 12V power connectors.

CM Board Standby Power
Headers
(19-pin CM_SB_L)
(see p.6, No. 15)

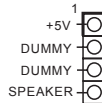


Connect this 19-pin header to the PSU for +12VSB and PSON PWROK.

(19-pin CM_SB_R)
(see p.6, No. 31)

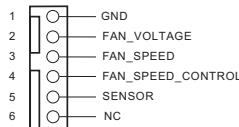


Chassis Speaker Header
(4-pin SPEAKER1)
(see p.6, No. 25)



Please connect the chassis speaker to this header.

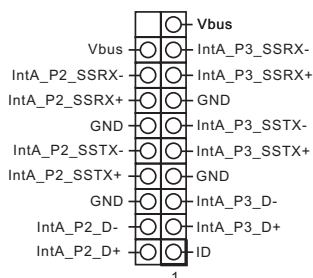
System Fan Connectors
(6-pin FAN1)
(see p.6, No. 28)
(6-pin FAN2)
(see p.6, No. 27)
(6-pin FAN3)
(see p.6, No. 21)
(6-pin FAN4)
(see p.6, No. 20)



This motherboard provides four 6-Pin CPU fan (Quiet Fan) connectors. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3.

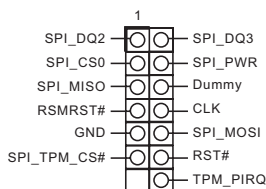
**For more details, please refer to the Cooler QVL list on the ASRock Rack website.*

USB 3.2 Gen1 Header
(19-pin USB3_3_4)
(see p.6, No. 9)



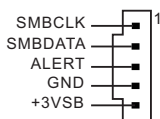
Besides two default USB 3.2 Gen1 ports on the I/O panel, there is one USB 3.2 Gen1 header on this motherboard. This USB 3.2 Gen1 header can support two USB 3.2 Gen1 ports.

TPM Header
(13-pin TPM1)
(see p.6, No. 16)



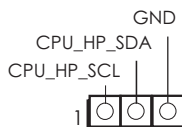
This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity.

PSU SMBus
(PSU_SMB1)
(see p.6, No. 22)



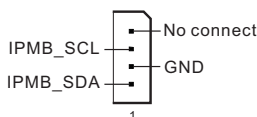
PSU SMBus monitors the status of the power supply, fan and system temperature.

Hot Plug Detect Header
(3-pin HP_SMB1)
(see p.6, No. 38)



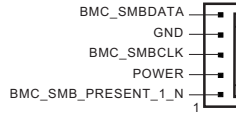
This header is used for backplane hot plug detect SMBUS.

Intelligent Platform
Management Bus header
(4-pin IPMB1)
(see p.6, No. 47)



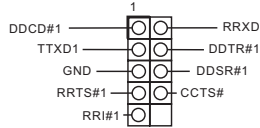
This 4-pin connector is used to provide a cabled base-board or front panel connection for value added features and 3rd-party add-in cards, such as Emergency Management cards, that provide management features using the IPMB.

Baseboard Management
Controller SMBus Header
(5-pin BMC_SMB1)
(see p.6, No. 48)



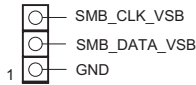
This header is used for the SM
BUS devices.

Serial Port Header
(9-pin COM1)
(see p.6, No. 2)



This COM1 header
supports a serial port
module.

PWM Configuration
Header
(3-pin PWM_CFG1)
(see p.6, No. 24)



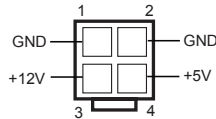
This header is used for PWM
configurations.

Clear CMOS Pad
(CLRMOS1)
(see p.6, No. 2)



CLRMOS1 allows you to clear
the data in CMOS. To clear
CMOS, take out the CMOS
battery and short the Clear
CMOS Pad.

HDD Power Connector
(4-pin HDD_PWR1)
(see p.6, No. 30)



This connector is used for
power supply from the system .

2.7 Unit Identification purpose LED/Switch

With the UID button, You are able to locate the server you're working on from behind a rack of servers.

Unit Identification
purpose LED/Switch
(UID)



When the UID button on the front or rear panel is pressed, the front/rear UID blue LED indicator will be turned on. Press the UID button again to turn off the indicator.

2.8 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

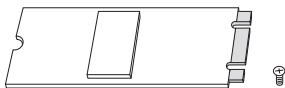
2.9 M.2 SSD Module Installation Guide

The Hyper M.2 Socket (M2_1/M2_2, Key M) supports either a M.2 SATA3 6.0 Gb/s module or a M.2 PCI Express module up to Gen4 x4 (64Gb/s).



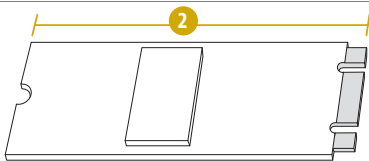
The diagrams in this documentation are for reference only. The actual supported M.2 type varies per motherboard.

Installing the M.2_SSD (NGFF) Module



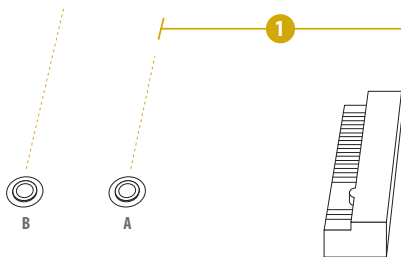
Step 1

Prepare a M.2 SSD module and the screw.



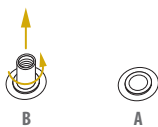
Step 2

Depending on the PCB type and length of your M.2 SSD module, find the corresponding nut location to be used.



M2_1:	No.	1	2
	Nut Location	A	B
	PCB Length	8cm	11cm
	Module Type	Type2280	Type22110

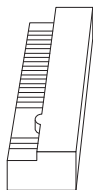
M2_2:	No.	1	2
	Nut Location	A	B
	PCB Length	6cm	8cm
	Module Type	Type2260	Type2280



Step 3

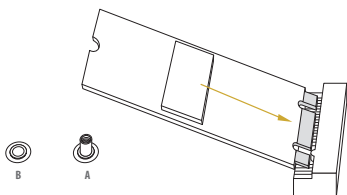
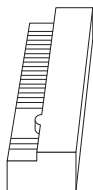
Move the standoff based on the module type and length. Skip Step 3 and 4 and go straight to Step 5 if you are going to use the default nut.

Otherwise, release the standoff by hand.



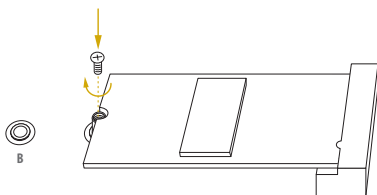
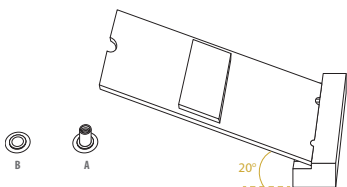
Step 4

Peel off the yellow protective film on the nut to be used. Hand tighten the standoff into the desired nut location on the motherboard.



Step 5

Align and gently insert the M.2 SSD module into the M.2 slot. Please be aware that the M.2 SSD module only fits in one orientation.



Step 6

Tighten the screw with a screwdriver to secure the module into place. Please do not overtighten the screw as this might damage the module.

Chapter 3 UEFI Setup Utility

3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY; otherwise, POST will continue with its test routines.

If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctrl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.



Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

3.1.1 UEFI Menu Bar

The top of the screen has a menu bar with the following selections:

Item	Description
Main	To set up the system time/date information
Advanced	To set up the advanced UEFI features
IntelRCSetup	For Intel CPU and chipset settings
Server Mgmt	To manage the server
Security	To set up the security features
Boot	To set up the default system device to locate and load the Operating System
Event Logs	For event log configuration
Exit	To exit the current screen or the UEFI SETUP UTILITY

Use <←> key or <→> key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen.

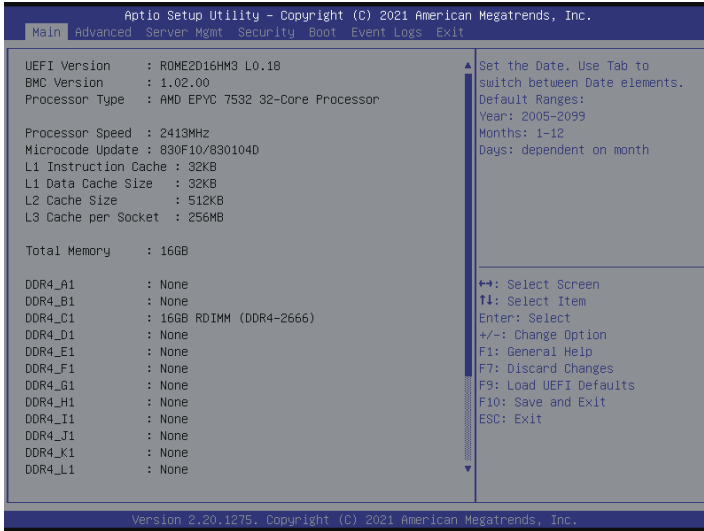
3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

Navigation Key(s)	Function Description
← / →	Moves cursor left or right to select Screens
↑ / ↓	Moves cursor up or down to select items
+ / -	To change option for the selected items
<Tab>	Switch to next function
<Enter>	To bring up the selected screen
<PGUP>	Go to the previous page
<PGDN>	Go to the next page
<HOME>	Go to the top of the screen
<END>	Go to the bottom of the screen
<F1>	To display the General Help Screen
<F7>	Discard changes and exit the UEFI SETUP UTILITY
<F9>	Load optimal default values for all the settings
<F10>	Save changes and exit the UEFI SETUP UTILITY
<F12>	Print screen
<ESC>	Jump to the Exit Screen or exit the current screen

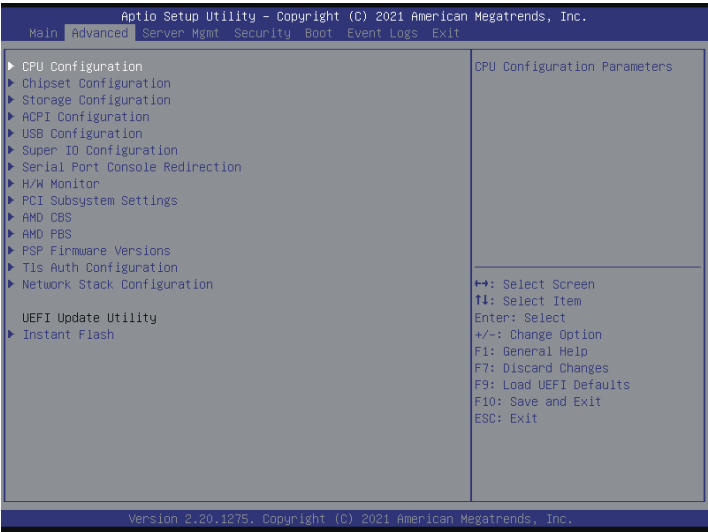
3.2 Main Screen

Once you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview. The Main screen provides system overview information and allows you to set the system time and date.



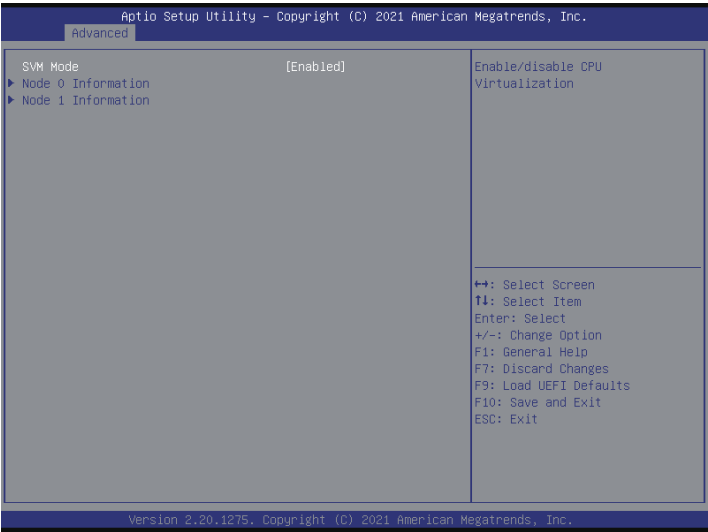
3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, ACPI Configuration, USB Configuration, Super IO Configuration, Serial Port Console Redirection, H/W Monitor, PCI Subsystem Settings, AMD CBS, AMD PBS, PSP Firmware Versions, Tls Auth Configuration, Network Stack Configuration and Instant Flash.



Setting wrong values in this section may cause the system to malfunction.

3.3.1 CPU Configuration



SVM Mode

Enable or disable CPU Virtualization.

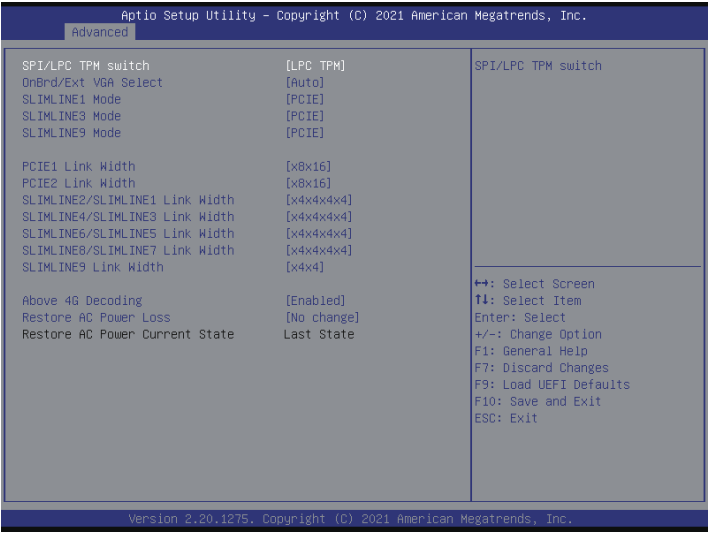
Node 0 Information

View Memory Information related to Node 0.

Node 1 Information

View Memory Information related to Node 1.

3.3.2 Chipset Configuration



SPI/LPC TPM Switch

Use this item to configure SPI/LPC TPM switch.

OnBrd/Ext VGA Select

Select between onboard or external VGA support.

SLIMLINE1 Mode

Use this item to configure SLIMLINE1 Mode.

SLIMLINE3 Mode

Use this item to configure SLIMLINE3 Mode.

SLIMLINE9 Mode

Use this item to configure SLIMLINE9 Mode.

PCIE1 Link Width

This allows you to select PCIE1 Link Width. The default value is [x8x16].

PCIE2 Link Width

This allows you to select PCIE2 Link Width. The default value is [x8x16].

SLIMLINE2/SLIMLINE1 Link Width

This allows you to select SLIMLINE2/SLIMLINE1 Link Width. The default value is [x4x4x4x4].

SLIMLINE4/SLIMLINE3 Link Width

This allows you to select SLIMLINE4/SLIMLINE3 Link Width. The default value is [x4x4x4x4].

SLIMLINE6/SLIMLINE5 Link Width

This allows you to select SLIMLINE6/SLIMLINE5 Link Width. The default value is [x4x4x4x4].

SLIMLINE8/SLIMLINE7 Link Width

This allows you to select SLIMLINE8/SLIMLINE7 Link Width. The default value is [x4x4x4x4].

SLIMLINE9 Link Width

This allows you to select SLIMLINE9 Link Width. The default value is [x4x4].

Above 4G Decoding

Enable or disable 64bit capable Devices to be decoded in Above 4G Address Space (only if the system supports 64 bit PCI decoding).

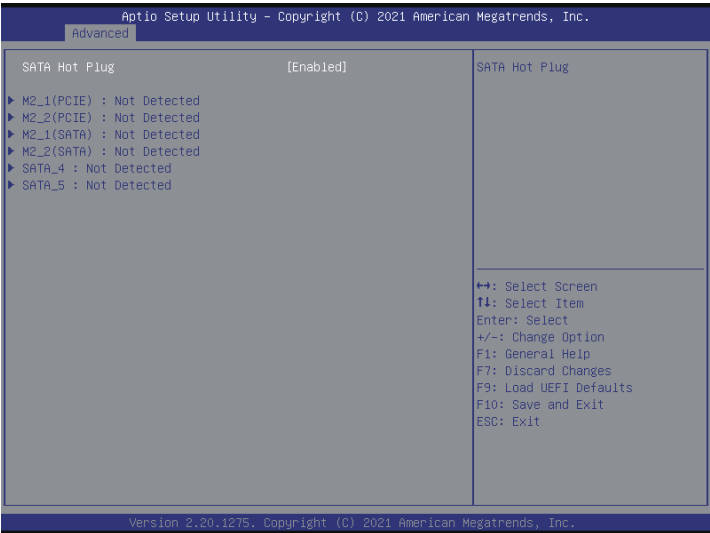
Restore AC Power Loss

This allows you to set the power state after a power failure. If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers.

Restore AC Power Current State

This allows you to restore AC Power Current State.

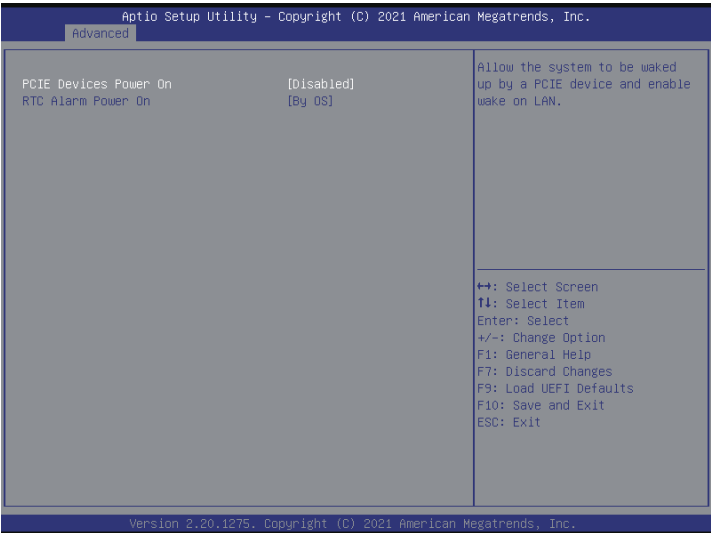
3.3.3 Storage Configuration



SATA Hot Plug

Enable/disable the SATA Hot Plug Function.

3.3.4 ACPI Configuration



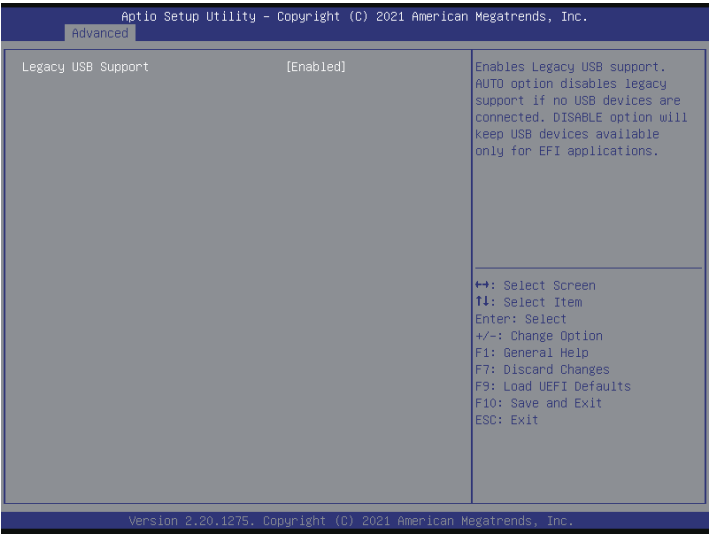
PCIE Devices Power On

Allow the system to be waked up by a PCIE device and enable wake on LAN.

RTC Alarm Power On

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

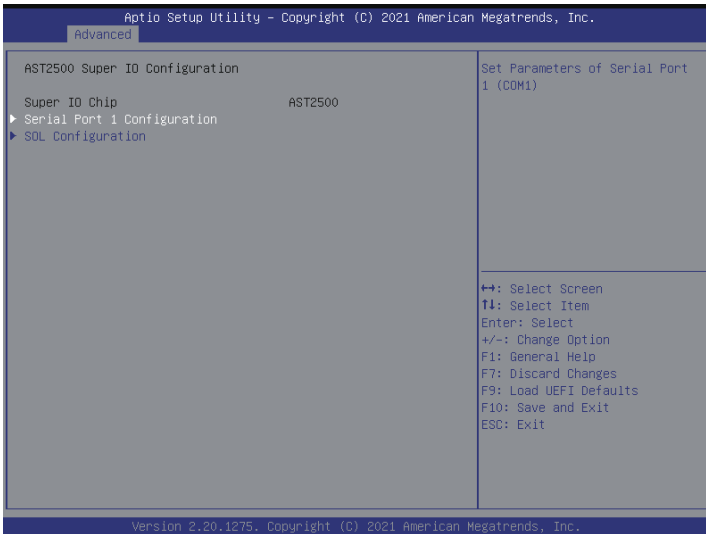
3.3.5 USB Configuration



Legacy USB Support

Use this option to enable or disable legacy support for USB devices. The default value is [Enabled].

3.3.6 Super IO Configuration



Serial Port 1 Configuration

Use this item to set parameters of Serial Port 1 (COM1).

Serial Port

Use this item to enable or disable the serial port.

Serial Port Address

Use this item to select an optimal setting for Super IO device.

SOL Configuration

Use this item to set parameters of SOL.

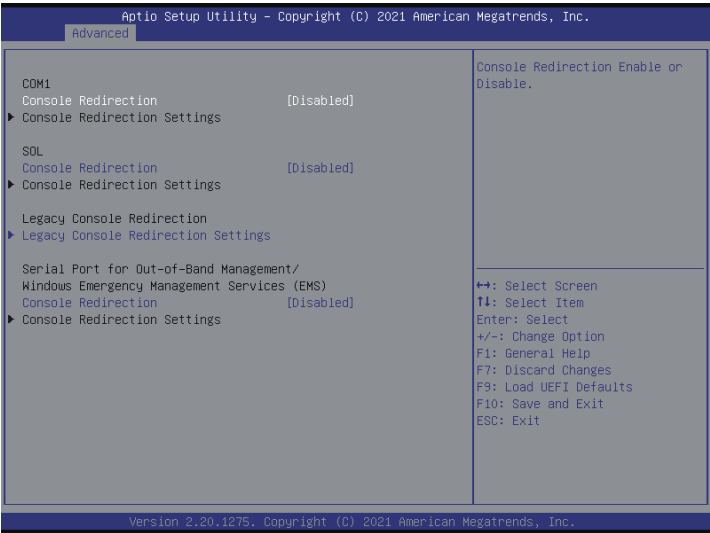
SOL Port

Use this item to set parameters of SOL.

Serial Port Address

Use this item to select an optimal setting for Super IO device.

3.3.7 Serial Port Console Redirection



COM1 / SOL

Console Redirection

Use this option to enable or disable Console Redirection. If this item is set to Enabled, you can select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information. Both computers should have the same or compatible settings.

Terminal Type

Use this item to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100+	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second

Use this item to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [38400], [57600] and [115200].

Data Bits

Use this item to set the data transmission size. The options include [7] and [8] (Bits).

Parity

Use this item to select the parity bit. The options include [None], [Even], [Odd], [Mark] and [Space].

Stop Bits

The item indicates the end of a serial data packet. The standard setting is [1] Stop Bit. Select [2] Stop Bits for slower devices.

Flow Control

Use this item to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None] and [Hardware RTS/CTS].

VT-UTF8 Combo Key Support

Use this item to enable or disable the VT-UTF8 Combo Key Support for ANSI/VT100 terminals.

Recorder Mode

Use this item to enable or disable Recorder Mode to capture terminal data and send it as text messages.

Resolution 100x31

Use this item to enable or disable extended terminal resolution support.

Putty Keypad

Use this item to select Function Key and Keypad on Putty.

Legacy Console Redirection**Legacy Console Redirection Settings**

Use this option to configure Legacy Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information.

Redirection COM Port

Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

Resolution

On Legacy OS, the Number of Rows and Columns supported redirection.

Redirect After POST

When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

Console Redirection

Use this option to enable or disable Console Redirection. If this item is set to Enabled, you can select a COM Port to be used for Console Redirection.

Console Redirection Settings

Use this option to configure Console Redirection Settings, and specify how your computer and the host computer to which you are connected exchange information.

Out-of-Band Mgmt Port

Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.

Terminal Type

Use this item to select the preferred terminal emulation type for out-of-band management. It is recommended to select [VT-UTF8].

Option	Description
VT100	ASCII character set
VT100+	Extended VT100 that supports color and function keys
VT-UTF8	UTF8 encoding is used to map Unicode chars onto 1 or more bytes
ANSI	Extended ASCII character set

Bits Per Second

Use this item to select the serial port transmission speed. The speed used in the host computer and the client computer must be the same. Long or noisy lines may require lower transmission speed. The options include [9600], [19200], [57600] and [115200].

Flow Control

Use this item to set the flow control to prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a "stop" signal can be sent to stop the data flow. Once the buffers are empty, a "start" signal can be sent to restart the flow. Hardware flow uses two wires to send start/stop signals. The options include [None], [Hardware RTS/CTS], and [Software Xon/Xoff].

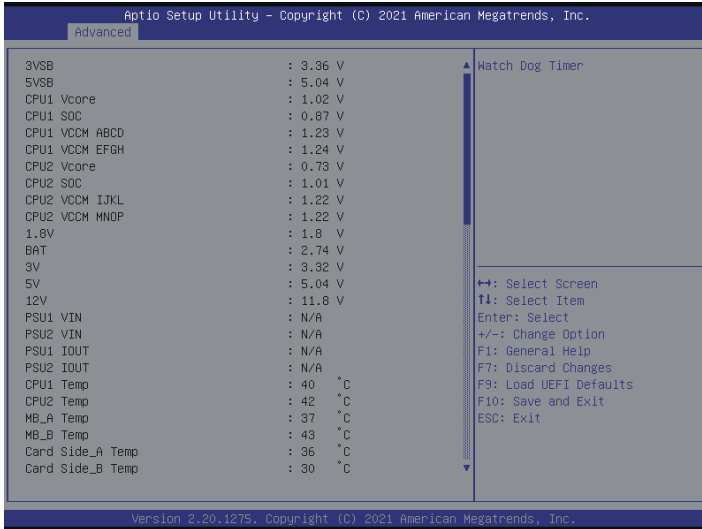
Data Bits

Parity

Stop Bits

3.3.8 H/W Monitor

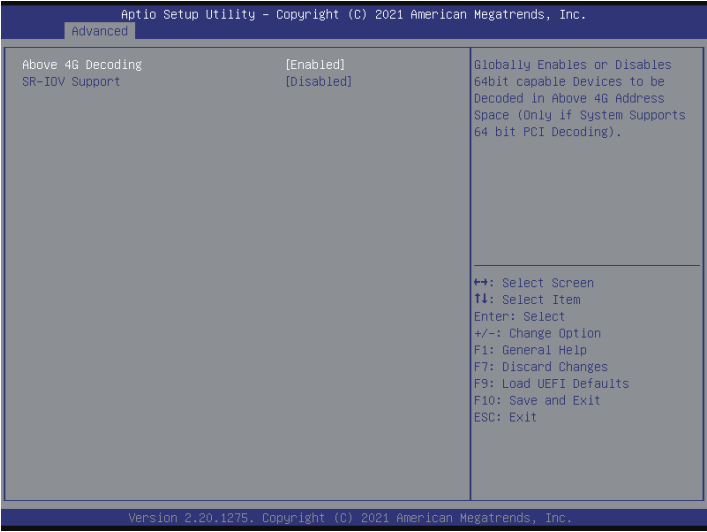
In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.



Watch Dog Timer

This allows you to enable or disable the Watch Dog Timer. The default value is [Auto].

3.3.9 PCI Subsystem Settings



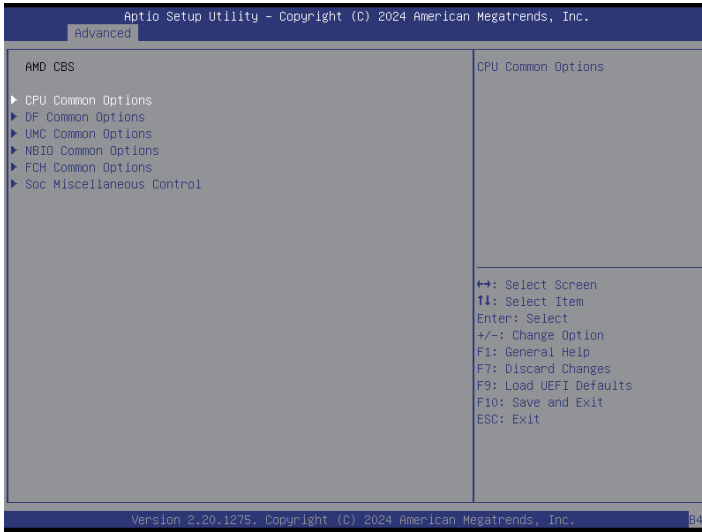
Above 4G Decoding

Enable or disable 64bit capable Devices to be decoded in Above 4G Address Space (only if the system supports 64 bit PCI decoding).

SR-IOV Support

If system has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support.

3.3.10 AMD CBS



CPU Common Options

Use this item to configure CPU Common options.

DF Common Options

Use this item to configure DF Common options.

UMC Common Options

Use this item to configure UMC Common options.

NBIO Common Options

Use this item to configure NBIO Common options.

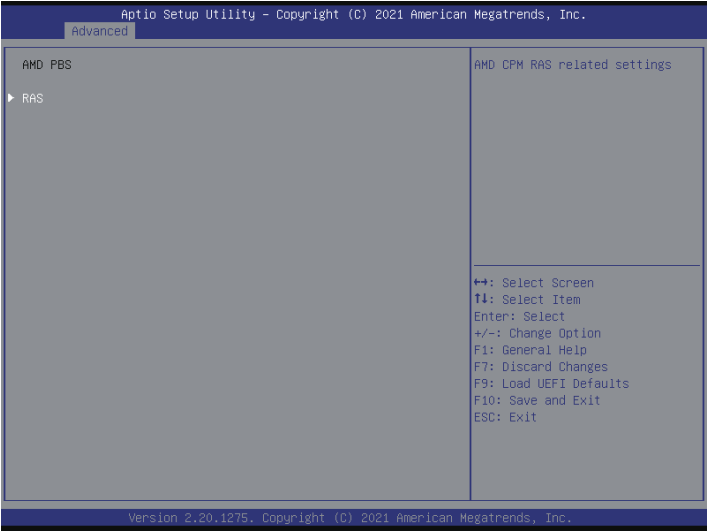
FCH Common Options

Use this item to configure FCH Common options.

Soc Miscellaneous Control

Use this item to configure Soc Miscellaneous Control options.

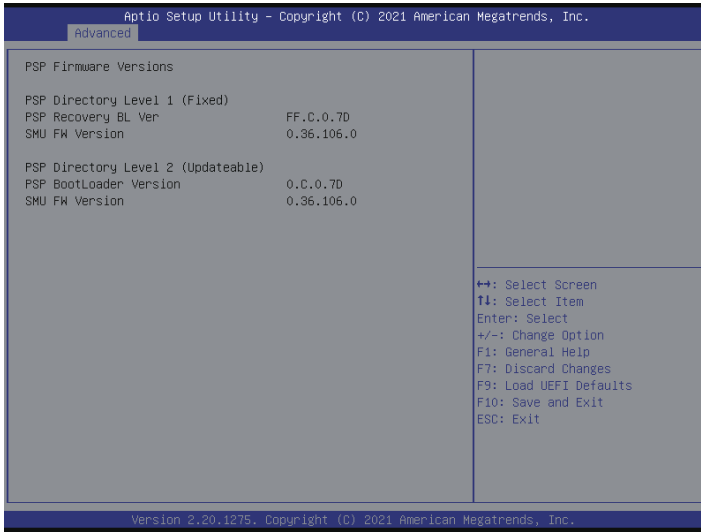
3.3.11 AMD PBS



RAS

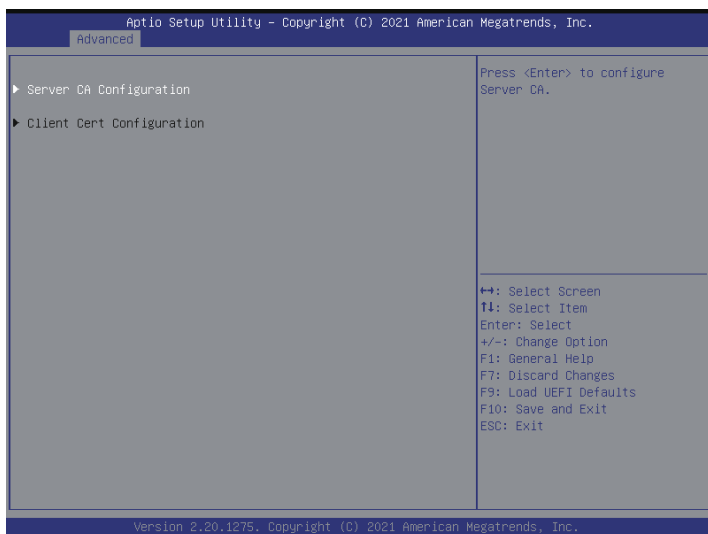
Use this item to configure AMD CPM RAS related settings.

3.3.12 PSP Firmware Versions



The PSP Firmware Versions displays the version information of PSP Recovery BL, PSP BootLoader, SMU FW, ABL, APCB, APDB, and APPB.

3.3.13 Tls Auth Configuration



Server CA Configuration

Press <Enter> to configure Server CA.

Client Cert Configuration

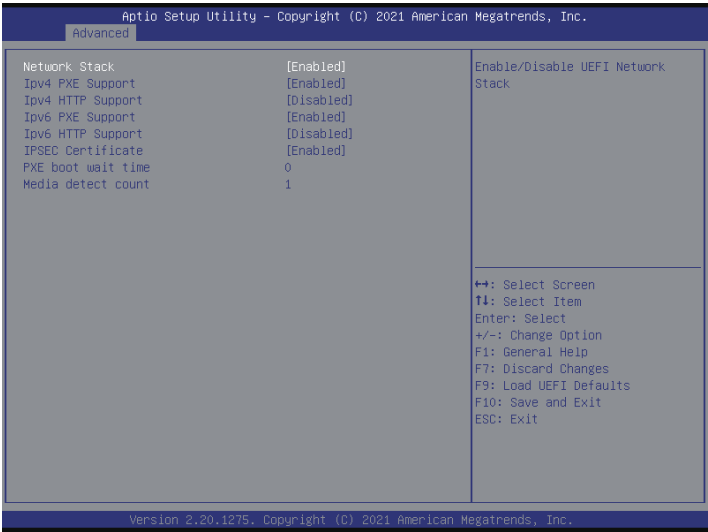
Enroll Cert

Press <Enter> to enroll cert.

Delete Cert

Press <Enter> to delete cert.

3.3.14 Network Stack Configuration



Network Stack

Use this item to enable or disable UEFI Network Stack.

Ipv4 PXE Support

Use this item to enable or disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.

Ipv4 HTTP Support

Use this item to enable or disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.

Ipv6 PXE Support

Use this item to enable or disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

Ipv6 HTTP Support

Use this item to enable or disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

IPSEC Certificate

Support to Enable/Disable IPSEC certificate for Ikev.

PXE boot wait time

Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.

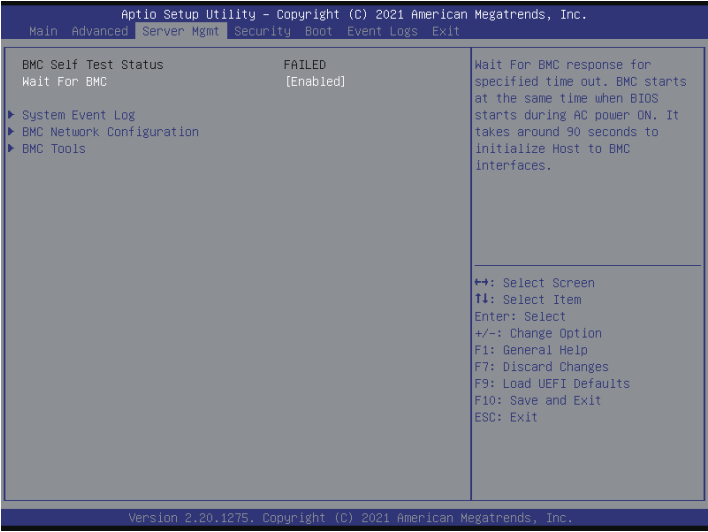
Media detect count

Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.

3.3.17 Instant Flash

Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows[®]. Just save the new UEFI file to your USB flash drive, floppy disk or hard drive and launch this tool, then you can update your UEFI only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after the UEFI update process is completed.

3.4 Server Mgmt



Wait For BMC

Wait For BMC response for specified time out. BMC starts at the same time when BIOS starts during AC power ON. It takes around 90 seconds to initialize Host to BMC interfaces.

3.4.1 System Event Log



SEL Components

Change this to enable or disable event logging for error/progress codes during boot.

Erase SEL

Use this to choose options for erasing SEL.

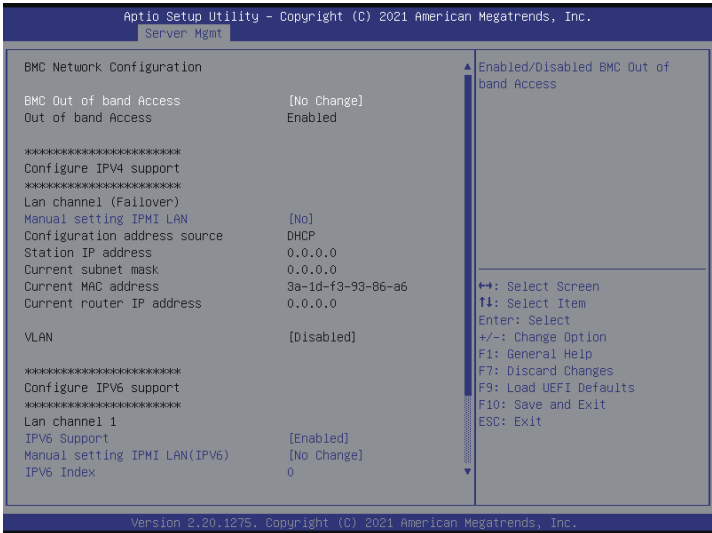
When SEL is Full

Use this to choose options for reactions to a full SEL.

Log EFI Status Codes

Use this item to disable the logging of EFI Status Codes or log only error code or only progress code or both.

3.4.2 BMC Network Configuration



BMC Out of Band Access

Use this item to enable or disable BMC Out of Band Access.

Lan Channel (Failover)

Manual Setting IPMI LAN

If [No] is selected, the IP address is assigned by DHCP. If you prefer using a static IP address, toggle to [Yes], and the changes take effect after the system reboots. The default value is [No].

Configuration Address Source

Select to configure BMC network parameters statically or dynamically (by BIOS or BMC). Configuration options: [Static] and [DHCP].

Static: Manually enter the IP Address, Subnet Mask and Gateway Address in the BIOS for BMC LAN channel configuration.

DHCP: IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server.



When [DHCP] or [Static] is selected, do NOT modify the BMC network settings on the IPMI web page.



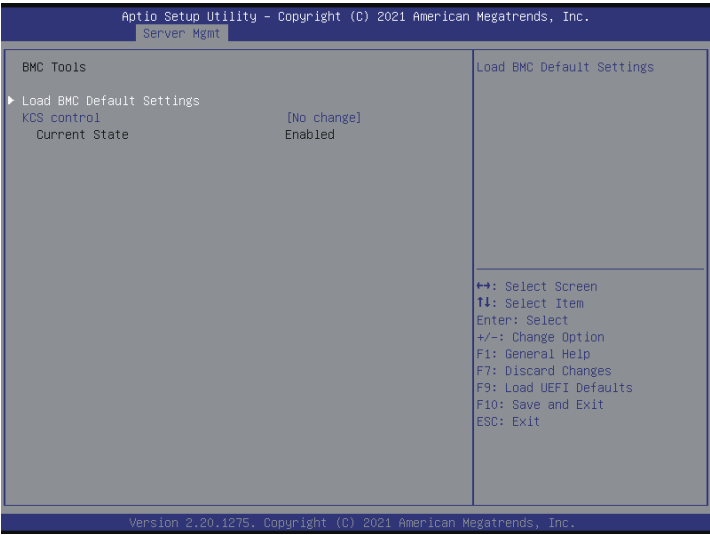
The default login information for the IPMI web interface is:

Username: admin

Password: admin

For more instructions on how to set up remote control environment and use the IPMI management platform, please refer to the IPMI Configuration User Guide or go to the Support website at: <http://www.asrockrack.com/support/faq.asp>

3.4.3 BMC Tools



Load BMC Default Settings

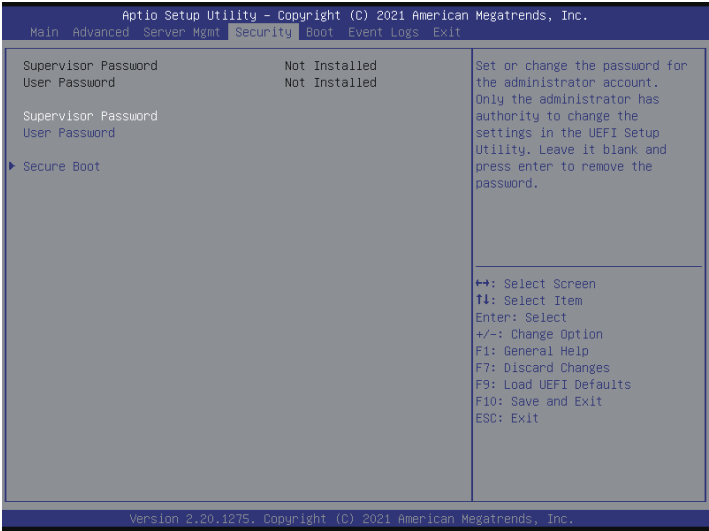
Use this item to Load BMC Default Settings.

KCS Control

Use this item to configure KCS Settings.

3.5 Security

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.



Supervisor Password

Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

User Password

Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password.

Secure Boot

Use this to enable or disable Secure Boot Control. The default value is [Disabled]. Enable to support Windows Server 2012 R2 or later versions Secure Boot.

Secure Boot Mode

Secure Boot mode selector: Standard/Custom. In Custom mode Secure Boot Variables can be configured without authentication.

3.5.1 Key Management

In this section, expert users can modify Secure Boot Policy variables without full authentication.



Factory Key Provision

Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.

Install Default Secure Boot Keys

Please install default secure boot keys if it's the first time you use secure boot.

Enroll Efi Image

Allow the image to run in Secure Boot mode. Enroll SHA256 hash of the binary into Authorized Signature Database (db).

Restore DB defaults

Restore DB variable to factory defaults.

Platform Key(PK)

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER encoded)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHA256, 384, 512

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Default, External, Mixed, Test

Key Exchange Keys

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER encoded)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHA256, 384, 512

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Default, External, Mixed, Test

Authorized Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

a) EFI_SIGNATURE_LIST

b) EFI_CERT_X509 (DER encoded)

c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHA256, 384, 512

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Default, External, Mixed, Test

Forbidden Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

- a) EFI_SIGNATURE_LIST
- b) EFI_CERT_X509 (DER encoded)
- c) EFI_CERT_RSA2048 (bin)
- d) EFI_CERT_SHA256, 384, 512

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Default, External, Mixed, Test

Authorized TimeStamps

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

- a) EFI_SIGNATURE_LIST
- b) EFI_CERT_X509 (DER encoded)
- c) EFI_CERT_RSA2048 (bin)
- d) EFI_CERT_SHA256, 384, 512

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Default, External, Mixed, Test

OsRecovery Signatures

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

- a) EFI_SIGNATURE_LIST
- b) EFI_CERT_X509 (DER encoded)
- c) EFI_CERT_RSA2048 (bin)
- d) EFI_CERT_SHA256, 384, 512

2. Authenticated UEFI Variable

3. EFI PE/COFF Image(SHA256)

Key Source: Default, External, Mixed, Test

3.6 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.



Boot Option #1

Use this item to set the system boot order.

Boot Option #2

Use this item to set the system boot order.

Boot Option #3

Use this item to set the system boot order.

Boot Option Filter

This option controls Legacy/UEFI ROMs priority.

USB Device BBS Priorities

This page will show only when system install USB Storage.

Setup Prompt Timeout

Configure the number of seconds to wait for the UEFI setup utility.

Bootup Num-Lock

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

Boot Beep

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed.

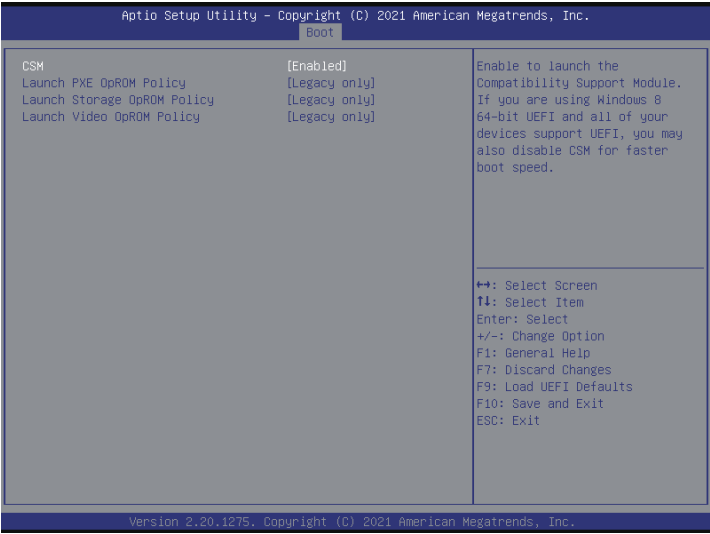
Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option “Full Screen Logo” but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

3.6.1 CSM Parameters



CSM

Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test.

Launch PXE OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

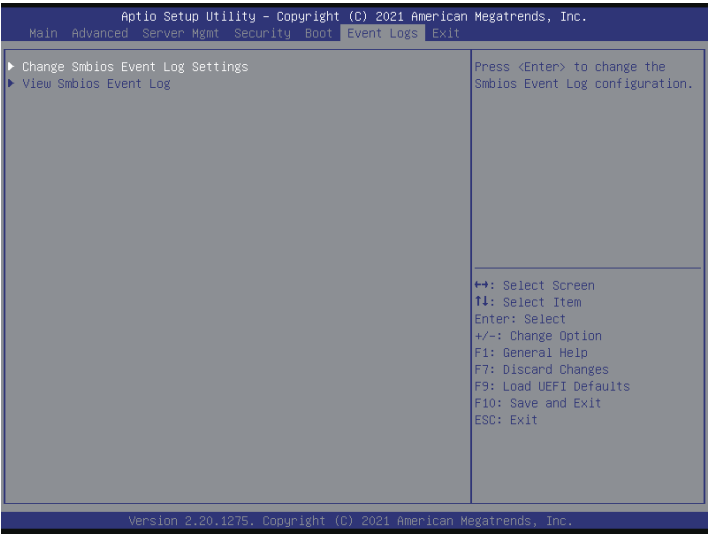
Launch Storage OpROM Policy

Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Select Do not launch to not execute both legacy and UEFI option ROM.

Other PCI Device ROM Priority

For PCI devices other than Network. Mass storage or Video defines which OpROM to launch.

3.7 Event Logs



Change Smbios Event Log Settings

This allows you to configure the Smbios Event Log Settings.

When entering the item, you will see the followings:

Smbios Event Log

Use this item to enable or disable all features of the SMBIOS Event Logging during system boot.

Erase Event Log

The options include [No], [Yes, Next reset] and [Yes, Every reset]. If Yes is selected, all logged events will be erased.

When Log is Full

Use this item to choose options for reactions to a full Smbios Event Log. The options include [Do Nothing] and [Erase Immediately].

Log System Boot Event

Choose option to enable/disable logging of System boot event.

MECI (Multiple Event Count Increment)

Use this item to enter the increment value for the multiple event counter. The valid range is from 1 to 255.

METW (Multiple Event Time Window)

Use this item to specify the number of minutes which must pass between duplicate log

entries which utilize a multiple-event counter. The value ranges from 0 to 99 minutes.

Log EFI Status Code

Enable or disable the logging of EFI Status Codes as OEM reserved type E0 (if not already converted to legacy).

Convert EFI Status Codes to Standard Smbios Type

Enable or disable the converting of EFI Status Codes to Standard Smbios Types (Not all may be translated).

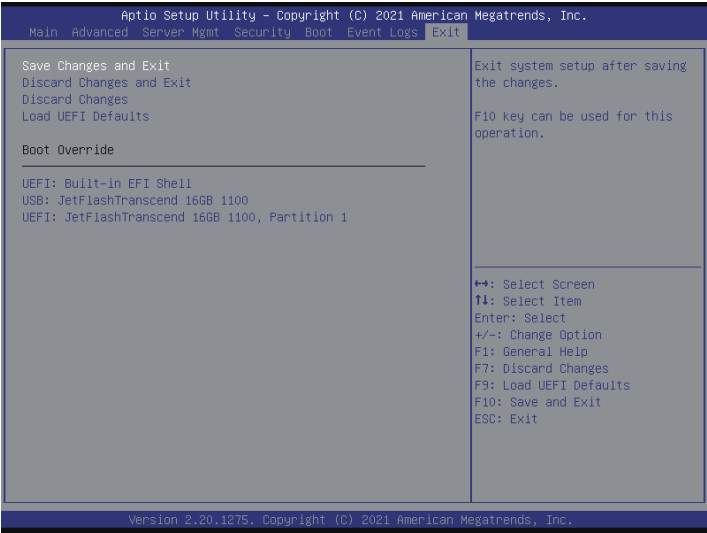
View Smbios Event Log

Press <Enter> to view the Smbios Event Log records.



All values changed here do not take effect until computer is restarted.

3.8 Exit Screen



Save Changes and Exit

When you select this option, the following message “Save configuration changes and exit setup?” will pop-out. Press <F10> key or select [Yes] to save the changes and exit the UEFI SETUP UTILITY.

Discard Changes and Exit

When you select this option, the following message “Discard changes and exit setup?” will pop-out. Press <ESC> key or select [Yes] to exit the UEFI SETUP UTILITY without saving any changes.

Discard Changes

When you select this option, the following message “Discard changes?” will pop-out. Press <F7> key or select [Yes] to discard all changes.

Load UEFI Defaults

Load UEFI default values for all the setup questions. F9 key can be used for this operation.

Boot Override

These items displays the available devices. Select an item to start booting from the selected device.

Chapter 4 Software Support

4.1 Install Operating System

This motherboard supports various Microsoft® Windows® Server / Linux compliant. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSetup.exe" from the root folder in the Support CD to display the menu.

4.2.2 Drivers Menu

The Drivers Menu shows the available device's drivers if the system detects installed devices. Please install the necessary drivers to activate the devices.

4.2.3 Utilities Menu

The Utilities Menu shows the application softwares that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

4.2.4 Contact Information

If you need to contact ASRock Rack or want to know more about ASRock Rack, welcome to visit ASRock Rack's website at <http://www.ASRockRack.com>; or you may contact your dealer for further information.

Chapter 5 Troubleshooting

5.1 Troubleshooting Procedures

Follow the procedures below to troubleshoot your system.



Always unplug the power cord before adding, removing or changing any hardware components. Failure to do so may cause physical injuries to you and damages to motherboard components.

1. Disconnect the power cable and check whether the PWR LED is off.
2. Unplug all cables, connectors and remove all add-on cards from the motherboard.
Make sure that the jumpers are set to default settings.
3. Confirm that there are no short circuits between the motherboard and the chassis.
4. Install a CPU and fan on the motherboard, then connect the chassis speaker and power LED.

If there is no power...

1. Confirm that there are no short circuits between the motherboard and the chassis.
2. Make sure that the jumpers are set to default settings.
3. Check the settings of the 115V/230V switch on the power supply.
4. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.

If there is no video...

1. Try replugging the monitor cables and power cord.
2. Check for memory errors.

If there are memory errors...

1. Verify that the DIMM modules are properly seated in the slots.
2. Use recommended DDR4 RDIMM, LRDIMM, 3DS, NVDIMMs.
3. If you have installed more than one DIMM modules, they should be identical with the same brand, speed, size and chip-type.
4. Try inserting different DIMM modules into different slots to identify faulty ones.
5. Check the settings of the 115V/230V switch on the power supply.

Unable to save system setup configurations...

1. Verify if the battery on the motherboard provides ~3VDC. Install a new battery if it does not.
2. Confirm whether your power supply provides adequate and stable power.

Other problems...

1. Try searching keywords related to your problem on ASRock Rack's FAQ page:
<http://www.asrockrack.com/support>

5.2 Technical Support Procedures

If you have tried the troubleshooting procedures mentioned above and the problems are still unsolved, please contact ASRock Rack's technical support with the following information:

1. Your contact information
2. Model name, BIOS version and problem type.
3. System configuration.
4. Problem description.

You may contact ASRock Rack's technical support at:
<http://www.asrockrack.com/support/tsd.asp>

5.3 Returning Merchandise for Service

For warranty service, the receipt or a copy of your invoice marked with the date of purchase is required. By calling your vendor or going to our RMA website (<http://event.asrockrack.com/tsd.asp>) you may obtain a Returned Merchandise Authorization (RMA) number.

The RMA number should be displayed on the outside of the shipping carton which is mailed prepaid or hand-carried when you return the motherboard to the manufacturer. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty does not cover damages incurred in shipping or from failure due to alteration, misuse, abuse or improper maintenance of products.

Contact your distributor first for any product related problems during the warranty period.